

GENERIC · POWERTRAIN

P01F6

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01F6

O2 Sensor Signal Biased/Stuck Lean Bank 1 Sensor 4

P01F6 indicates that the powertrain control module has detected a lean bias or stuck-lean condition on the downstream oxygen sensor for bank 1 sensor 4, meaning the sensor's voltage stays lower than expected for the exhaust oxygen content. The computer compares this signal against other sensors and its fueling model, and it flags the code when the reading remains lean beyond a calibrated time and threshold.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- A slight decrease in fuel economy as the engine runs richer to compensate
- Occasional rough idle or hesitation during light acceleration
- A faint sulfur or rotten-egg smell from the exhaust in some cases
- Failed emissions inspection due to the stored code and monitor status
- In rare cases, a lean misfire or surging at steady cruise speeds

Common causes, most likely first

- 1 A failed or contaminated bank 1 sensor 4 oxygen sensor that reads lean regardless of actual exhaust oxygen
- 2 An exhaust leak upstream of the sensor, such as a cracked pipe or failed gasket, allowing outside air to reach the sensor
- 3 A wiring fault in the sensor circuit, including chafed wires, corroded connectors, or a poor ground
- 4 A stuck-open or leaking fuel injector on bank 1 causing a genuine lean condition that the sensor correctly reports
- 5 A vacuum leak on bank 1 that leans the mixture and drives the downstream sensor signal low
- 6 A failing catalytic converter that no longer stores oxygen properly, altering the downstream sensor's expected switching
- 7 Low fuel pressure or a weak fuel pump that starves the engine and produces a lean exhaust stream



How to diagnose and fix it

- 1 Inspect the bank 1 sensor 4 wiring and connector for damage, corrosion, or loose pins, and repair as needed
- 2 Perform a visual and smoke test of the exhaust system upstream of the sensor to find leaks
- 3 Use a scan tool to view live oxygen sensor voltage and compare bank 1 sensor 4 against bank 1 sensor 2 and fuel trim data
- 4 Check fuel pressure and inspect for vacuum leaks on bank 1 using a smoke machine or propane enrichment
- 5 Test the oxygen sensor's heater circuit and signal response with a multimeter or oscilloscope before condemning the sensor
- 6 Replace the bank 1 sensor 4 oxygen sensor only after confirming the circuit and exhaust are sound
- 7 Clear the code and complete a drive cycle to verify the repair and confirm the monitor runs to completion

Why a lean code is not always the sensor

- A downstream oxygen sensor that reads lean is often reporting a real lean condition caused by an exhaust leak or vacuum leak, so replacing the sensor first frequently fails to fix the code.
Bank 1 sensor 4 is typically a downstream sensor on a V8 or V6 engine, and its signal is heavily influenced by catalytic converter efficiency, so a tired converter can set this code without any sensor fault.
- Corroded or oil-contaminated sensor connectors are a common hidden cause, especially on vehicles that have had recent engine work or a valve cover gasket leak.
- Fuel trim data is the fastest way to separate a true lean condition from a biased sensor: positive long-term fuel trims on bank 1 point to a real lean mixture, while normal trims with a low sensor voltage point to the sensor or its circuit.
- A stuck-lean sensor can be intermittent, so a wiggle test of the harness while watching live data often reveals a wiring problem that a static resistance check misses.

Can I keep driving with P01F6?

You can usually drive the vehicle short distances to a repair shop, but avoid sustained high-speed or heavy-load driving because a genuine lean condition can overheat the catalytic converter and cause costly damage. If the check engine light begins flashing or the engine runs rough, stop driving and have it towed.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter
- Smoke machine for exhaust and vacuum leak testing
- Fuel pressure gauge
- Oxygen sensor socket and ratchet
- Wiring diagram for the bank 1 sensor 4 circuit



Reading P01F6

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 1** Fuel and air metering.
- F6** The exact fault within that area.

Often seen with

P0156 O2 Sensor Circuit Malfunction (Bank 2 Sensor 2) · **P0157** O2 Sensor Circuit Low Voltage (Bank 2 Sensor 2) · **P0158** O2 Sensor Circuit High Voltage (Bank 2 Sensor 2) · **P0171** System Too Lean (Bank 1) · **P0420** Catalyst System Efficiency Below Threshold (Bank 1)

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01f6/>

